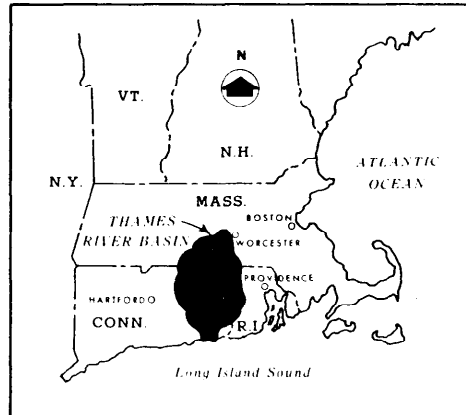


WATER RESOURCES INVESTIGATION
THAMES RIVER BASIN
MASS., CONN. & R. I.



HODGES VILLAGE DAM
OXFORD, MASS.

PLAN OF STUDY

MODIFICATIONS OF HODGES VILLAGE
DAM AND RESERVOIR

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

SEPTEMBER 1977

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PREFACE

This Plan of Study presents the general procedures to be followed in undertaking a study of the Hodges Village Dam, for the purpose of modifying the existing project for low-flow storage and to determine subsequent needs and solutions of other land and water related resource desires in the area. Portions of this Plan of Study, by reason of continued coordination and communications with other agencies and local interests will be subject to change, as required.

The Hodges Village Dam Study is a feasibility study of survey scope, classified as a Level C by the Water Resources Council. It encompasses a narrower geographic or analytic scope than Levels A or B. All available data and other general information from past reports, including maps, technical data, historical, environmental and other applicable information will be utilized.

In seeking solutions to the resources needs of the study area, consideration will also be given to the objectives of National Economic Development and Social Well Being of the people. All significant adverse and beneficial project effects on the environment, including the esthetics of the area, will be identified and assessed, and the feasibility of elimination or minimizing adverse effects will be fully explored.

The results of the study will be available for interagency and municipal use as well as other interests, for reference and future planning purposes.

PLAN OF STUDY

MODIFICATIONS OF HODGES VILLAGE DAM & RESERVOIR
OXFORD, MASSACHUSETTS

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PLAN OF STUDY

MODIFICATIONS OF HODGES VILLAGE DAM & RESERVOIR OXFORD, MASSACHUSETTS

A. Introduction

1. Location and Description.

The Hodges Village Dam and Reservoir is a single purpose flood control project on the French River. It is located in the town of Oxford, in the upper Thames River Basin of South Central, Massachusetts. The dam site is near Hodges Village, about 10 miles south of Worcester and 5 miles upstream of Webster, Massachusetts. Construction of the Hodges Village Dam and Reservoir project was authorized by an Act of Congress, approved 18 August 1941, Public Law 228, 77th Congress, and the Flood Control Act of 22 December 1944, Public Law 534, 78th Congress. The project was started in 1958 and completed in 1959 at a total Federal cost of \$4,421,000. No local costs were required.

The dam is a rock and earth fill type about 2,050 feet in length, with a top width of 22 feet. The height of the dam at elevation 520.0 msl is 55 feet above the river bed. The concrete ogee spillway weir is on rock, and is 125 feet long at crest elevation of 501.0 msl. The reservoir is operated for flood control purposes only, and has a storage capacity of 13,250 acre feet, which is equivalent to 8.0 inches of runoff from its drainage area of 31.1 square miles. Other project features consist of four dikes, totaling 2,660 feet in length and a maximum height of 35 feet. Other data and pertinent details are shown at the end of the report, in APPENDIX A.

The reservoir has never filled to the top of the spillway. However, if it should fill to spillway crest elevation, the water would cover an area of about 750 acres and extend upstream about three miles. The maximum water level in the reservoir reached a stage of 23.4 feet, which was 43 percent of capacity, and covered about 600 acres in 1968.

Hodges Village Dam is operated as one unit in the overall comprehensive plan of flood protection in the Thames River Basin. Since operation of the project there has been major reductions in flood damages at Webster and Dudley, Massachusetts and Thompson, Connecticut. In addition, flood damages are materially reduced at damage centers extending from Putnam, Connecticut, on the Quinebaug River, downstream to Norwich on the Thames River. Flood damages prevented through 1976 amount to \$2,832,000.

2. Study Authorization.

This study was authorized by Section 216 of the Flood Control Act of 1970 Title II of Public Law 91-611 which reads as follows:

"The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects, the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes when found advisable due to the significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest."

B. Plan of Study

3. Purpose.

The purpose of this plan of study is to establish a scope of work, prepare cost estimates for project modifications and determine other land and water related resource needs in the area due to changed conditions since completion of the project in 1959.

It will be used as a guide and management document. Accordingly, it may be modified to reflect the revisions or refinements made necessary by the findings of the study. The Plan of Study will:

a. Provide the planner with an advance planning tool for developing a plan of action prior to the start of the study.

b. Define at the earliest practicable date any adverse problems associated with the analysis, formulation, policies, objectives, needs and scale of studies required during the course of the investigation.

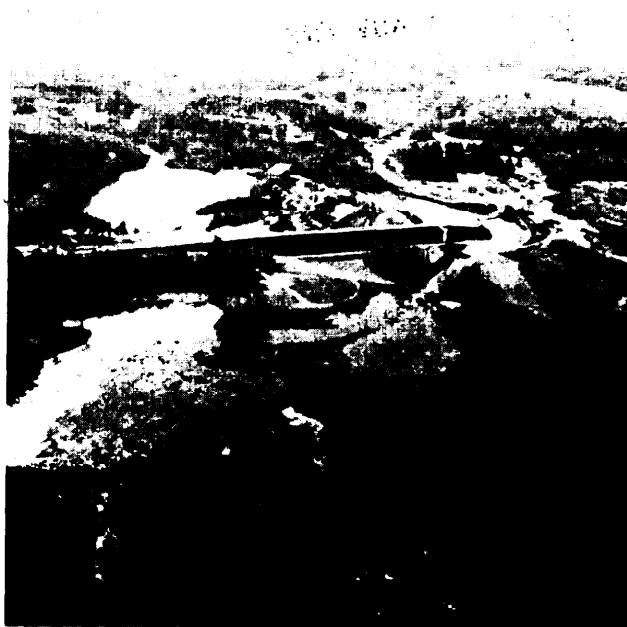
c. Insure early and continuing coordination with, and services from, other Federal, State, and local agencies; and generate response from responsible and informed local groups. Early coordination is essential to avoid delay of investigations and to accomplish a plan of improvement that is both responsive to the needs of, and acceptable to the State and communities involved.

d. Provide the Chief of Engineers with advance information on the nature of the investigation and the identity of potential problem areas.

C. Existing Conditions

4. The Watershed and Study Area.

The Thames River Basin lies principally in the eastern part of Connecticut with small sections extending into the south-central part of Massachusetts and the northwestern part of Rhode Island. It comprises an area of 1,474 square miles. Of this area 1,162 square miles lie in Connecticut, 251 square miles in Massachusetts and 61 square miles in Rhode Island. It



DAM & SPILLWAY - LOOKING DOWNSTREAM
(SOUTH) Photo 11-21-76



DAM & RESERVOIR - LOOKING UPSTREAM
(NORTH) Photo 11-21-76

has a maximum width of 38 miles and a maximum length of 67 miles. It is bounded by the Connecticut River Basin on the northwest and west, the Blackstone River Basin on the northeast, the Pawtuxet River watershed of the Narragansett Bay Drainage Basin on the east and the Pawcatuck River Basin on the southeast. It narrows to a point as it bisects the Eastern Connecticut Coastal Area at the seaport communities of New London and Groton. See PLATE 1.

The basin derives its name from the Thames River, a tidal estuary extending about 15 miles northward from Long Island Sound at New London, to Norwich, Connecticut, where it receives the freshwater discharge of its principal tributaries, the Yantic and Shetucket Rivers. The Quinebaug River, largest tributary of the Shetucket, drains most of the eastern half of the basin. The principal tributary of the Quinebaug, the French River, rises in headwaters about 5 miles west of Worcester, Massachusetts. The overall basin, showing the location of the existing projects, is shown on PLATE 2.

The study area will be confined to the Hodges Village Dam Drainage area and the river downstream to Putnam, Connecticut. Recommendations of changes in the operation or modification for related land and water resource needs will be limited to the Hodges Village Dam and Reservoir only.

5. Climatology.

The Thames River basin has a variable climate characterized by frequent but short periods of heavy precipitation. The basin lies in the path of the "prevailing westerlies" and cyclonic disturbances that cross the country from the west or southwest towards the east or northeast. It is also exposed to occasional coastal storms that travel up the Atlantic seaboard. Some storms are of tropical origin and occasionally some are of hurricane intensity, heavily laden with moisture from the ocean. The southern portion of the basin, due to its proximity to the Atlantic Ocean and Long Island Sound, escapes the severity of the cold and depth of snowfall experienced at higher elevations in the northern parts of the watershed.

6. Temperature.

The average annual air temperature of the Thames River Basin is about 48° F. For particular locations within the basin, average annual temperatures range from about 50° F. near the coast to 46° F. in the northern areas. Average monthly temperatures vary widely throughout the year, from 69-72° F. in July and August to 25-30° F. in January and February. Extremes in temperature range from occasional highs in the upper 90's to infrequent lows of minus 10° F. or lower.

7. Precipitation.

The average annual precipitation over the Thames River basin is about 44 inches, varying from about 42 inches in the vicinity of Webster Lake,

in the French River watershed, to about 48 inches in the upland areas northwest of Southbridge, Massachusetts. Distribution of precipitation throughout the year is somewhat uniform. The annual snowfall over the watershed varies from about 30 inches near the coast to more than 50 inches in the upland areas in Massachusetts. In the early spring, water content of the snow cover seldom averages more than 2 inches over the entire basin. However, 4 inches or more has been experienced occasionally in upland areas.

8. Flood History.

Since 1828 the Thames River basin has experienced 4 localized and 8 general basin floods. Local floods occurred in March and August 1877, March 1888 and November 1927. General floods occurred in September 1828, March 1876, February 1886, March 1936 (2 floods), July and September 1938, August 1955 and March 1968.

The last five notable floods of records are as follows:

a. The 1936 floods resulted from two storms occurring between 9-13 and 16-22 March. Hydrographs at all gaging stations show two peaks separated by a recession almost to base flow. The first flood was caused by about 3 inches of rain falling on snow with a water equivalent of approximately 3 inches. In addition, minor ice jams and the failure of many small dams aggravated the flood. The first peak surpassed the previous record flood in most of the basin. The second flood occurred before extensive pond and swamp storage became available and the ground thoroughly dried out. Heavy rainfall in that storm, from 3 to 5 inches, caused rivers to rise to levels surpassing the first storm in most parts of the basin.

b. The July 1938 flood was generally smaller than the March 1936 event. The storm averaged about 5 inches in the basin and occurred when conditions were favorable for heavy runoff. Precipitation during June was well above normal, minimizing the amount of available storage in the ponds and swamps, maintaining a high ground water table. Considerable portions of the lower Quinebaug River and its tributaries as far north as the French River were flooded and considerable damage was evident.

c. The September 1938 event was accompanied by a disastrous hurricane, and 10-14 inches of rainfall was recorded in the basin. Rainfall during the previous month was heavier than normal, tending to reduce initial storage and infiltration losses.

d. The August 1955 flood, produced by intense rainfall associated with hurricane Diane, was preceded by substantial rainfall from hurricane Connie one week earlier. Hurricane Connie deposited from 3-6 inches of precipitation in the Thames basin. Since the 1955 summer was hot and dry, a large percentage of Connie's rainfall was absorbed by the soil. Hurricane Diane produced rainfall from 2 inches in New London to 10-16 inches in the headwaters, resulting in the flood of record in the Quinebaug, French and Willimantic River basins.



INLET CHANNEL & LOG BOOM - FLOOD STORAGE AT 13 PERCENT
STORAGE CAPACITY, LOOKING UPSTREAM. Photo 3-15-77



OUTLET CHANNEL - FLOOD WATER DISCHARGE AT ABOUT 300 CFS.
LOOKING DOWNSTREAM Photo 3-18-77



PARTIAL FLOODING OF TOWN BORROW PIT.

Photo 3 -18-77



FLOODING OF PERIMETER ROAD AT UPPER
RESERVOIR AREA

Photo 3-18-77

e. The March 17-18, 1968 storm produced flooding in areas of southern New England where snow melt had already produced moderate increases in riverflows. The rainfall at Hodges Village was a total of 4.5 inches, and resulted in a maximum reservoir stage of 23.4 feet. The storage utilized was 43 percent of capacity and was the storage of record.

D. Environmental and Socio-Economic Conditions

9. Environmental Setting.

a. Topography. The regional landscape surrounding the reservoir is characterized as glacially eroded, tree-covered hills, gently rolling with moderate relief. Numerous lakes and ponds resulting from glaciation are a major feature. Elevations range from about 480 feet msl in the French River valley to about 800 feet msl on top of several surrounding hills. The French River above the reservoir flows through a generally narrow valley and narrow flood plain flanked by high, steep sided hills. Beginning at the northern end of the reservoir, at North Oxford, the valley widens and is partly lined with terraces. Much of the flood plain area is wetland.

b. Vegetation. The native upland vegetation of the region generally consists of woodlands characterized by the drier oak-hickory woods of southern New England to the northern hardwood forests consisting of beech, maple, white pine and hemlock. This transition forest is primarily a mixture of white pine and hardwoods such as maple, beech and birch. Less frequent species include ash, red oak, white oak, hickory and hemlock. Most of the upland woods surrounding the reservoir have a closed canopy with small to medium sized trees, indicating recent regeneration from agriculture. At present there is only limited forest management for wood production.

The major portion of the reservoir is wetland, containing varied plant species composition. Red maples predominate in tree swamps, accompanied by meadowsweet, black alder, specked alder and other shrubs. Stream banks are populated by black willow, red maple, gray birch and redosier dogwood. Marshes are dominated by cattail and tussock sedge.

Well drained meadows contain little bluestem, asters, goldenrod, meadowsweet, sweetfern, staghorn sumac, small white pine and quaking aspen. The reservoir area was not cleared of vegetation during dam construction, except for a 15 acre borrow area. The absence of a permanent or seasonal pool, and the abundance of water tolerant plant species throughout much of the reservoir has resulted in minimal visual impact.

c. Reservoir and Land Use.

In most of the reservoir area, wet soils and/or steep slopes limit extensive recreation development. The principle land use is open space

recreational activities such as fishing, hunting, hiking and snowmobiling. The Commonwealth of Massachusetts Division of Fisheries and Wildlife has a license for 676 acres of the project for the purpose of wildlife management and game stocking.

Two recreation areas totaling 109 acres on the east side of the French River are leased to the town of Oxford. Activities in these areas include baseball, tennis, skating and picnicking. Intensive water based recreation facilities are provided at nearby Buffumville Lake as well as numerous local lakes and ponds.

d. Wildlife. Diverse habitat areas in the reservoir make it suitable for a wide range of wildlife species. The marshes support aquatic birds and mammals such as muskrat, vole, mice, small herons, rails and numerous wetland songbirds. The shallow waters along the French River attract surface feeders such as black duck, wood duck and mallard. Upland areas contain fox, muskrat, racoon and rabbits, as well as grouse, pheasant, and quail. This area is annually stocked with hare by the Massachusetts Division of Fisheries and Wildlife. The absence of a permanent pool is beneficial to wildlife by allowing perpetuation of productive marshes and shrub swamps.

e. Water Quality. The French River is generally a Class B stream in the area of Hodges Village Dam. Class B waters are suitable for water contact recreation and with treatment and disinfection are acceptable for public water supply. A well field located within the reservoir yields half a million gallons of high quality water per day, for the town of Oxford.

Since no pool is maintained behind the dam, except during flood control operations, no appreciable change in downstream water quality has been noted.

10. Socio-Economic Conditions.

a. Land Use. This study concentrates upon the contiguous communities of Dudley, Oxford, and Webster all in Massachusetts, and Thompson and Putnam further downstream in Connecticut. The area surrounding the Hodges Village Reservoir is largely undeveloped. Oxford, located closest to the dam, is predominantly rural, although efforts are being made to attract industry through the development of an industrial park. Webster, to the south, is the largest of these communities in terms of population, and is relatively industrialized. Dudley is mainly a residential town, with its citizens working in surrounding communities. Further downstream Thompson and Putnam, although both predominantly rural, contain small urban centers.

b. Population. Of the five towns in the study area, only Putnam has experienced a net population decrease from 1950 to 1970 of about 5.9 percent. Both Dudley, which witnessed an increase of 23.7 percent between



GREENBRIAR RECREATION AREA AT THE UPPER
LIMIT OF THE RESERVOIR Photo 11-21-76



CEDAR SWAMP and TOWN BORROW PIT
Photo 11-21-76

1950-1960, and an increase of 24.2 percent between 1960-1970, and Oxford, experiencing increases of 58.6 percent and 11.5 percent respectively, grew rapidly and exceed the rate of population growth in Worcester County. Webster experienced a moderate rate of population increase of 3.7 percent from 1950-1960 and 9.0 percent from 1960-1970, while Thompson's population grew at a relatively rapid rate of 11.3 percent and 21.9 percent, respectively. See Table 1 for 1950-1970 population figures and Table 2 for 1980-2000 figures.

c. Transportation. The towns of Oxford, Dudley, and Webster are served by essentially the same transportation modes. Commercial air services are available at Worcester, Providence and Boston, distances of 12, 37, and 47 miles from Oxford, respectively. Thompson and Putnam are serviced by the Danielson Airport, a small airfield located in Killingly, and by both Logan and Bradley International Airports in Boston, Massachusetts and Windsor, Connecticut, respectively. Both are roughly two hours distant. Highway Route 52 runs directly through these communities, while the Massachusetts Turnpike is roughly twenty miles to the north.

For all these communities rail freight and trucking services are provided locally. Passenger rail services via Amtrak and passenger bus service is available in Worcester.

d. Economic Activity and Structures. The economy in this area was based initially upon agriculture. Manufacturing of textiles and apparel was introduced during the decade following 1810, and was based upon water power. The basis of the regional economy was diversified somewhat, but a continued reliance upon these industries, which at present are depressed industries, has created some hardship in this area. It is anticipated that Route 52 will, over the long term, increase the appeal of this area to entrepreneurs. The towns are exporters of labor, primarily due to their undeveloped nature and to the easy access provided to other market areas by the existing road network. A comparison of employment patterns in the towns and states is shown in Table 3.

e. Income. The communities have a lower per capita income level compared with their respective state levels. The per capita income level of Putnam (\$3,225) and of Thompson (\$3,190) were the highest, surpassing the figure of \$3,148 for Windham County, yet they were lower than the figure of \$3,900 for Connecticut as a whole, (all income figures are as of 1969). In Worcester County the per capita income was (\$3,192), and in Webster it was \$3,042. The figure for Dudley was \$3,023, and for Oxford it was \$2,787. The Massachusetts state per capita income was \$3,425.

On the basis of median income for families and unrelated individuals, only Oxford (\$10,021) and Webster (\$9,418) rank above the figure for their State (Massachusetts) of \$8,607. Dudley (\$8,026) fell below the figure for Massachusetts and also below that for Worcester County (\$8,547). Thompson (\$9,202) and Putnam (\$7,177) while having a higher median income than Windham County (\$6,525) still rank below the median income figure for Connecticut (\$9,998).

TABLE 1

POPULATION 1950-1970

	1950	1960	1970
Dudley	5,261	6,510	8,084
Oxford	5,851	9,282	10,345
Webster	13,194	13,580	14,917
Putnam	9,304	8,412	8,598
Thompson	5,585	6,217	7,580
Massachusetts	4,690,514	5,148,518	5,689,170
Connecticut	2,007,280	2,535,234	3,032,217

TABLE 2

POPULATION 1980-2000

	1980	1990	2000
Dudley	9,424	10,477	11,259
Oxford	11,730	13,040	14,014
Webster	16,252	17,171	17,839
Putnam	9,000	9,300	9,650
Thompson	9,000	9,500	10,000
Massachusetts	6,046,000	6,388,000	6,668,000
Connecticut	3,347,900	3,573,900	3,773,800

Sources: U.S. Census 1970; Connecticut Northeast Planning Commission;
Central Massachusetts Regional Planning Commission 1976.

TABLE 3

TOWN & STATE EMPLOYMENT PATTERNS

	% employed government	% employed in white collar jobs	% employed in manufacturing
Dudley	N.A.	N.A.	48.2
Oxford	9.6	38.1	39.7
Webster	6.1	32.5	54.7
Worcester County	14.4	50.6	30.9
Massachusetts	14.8	52.7	29.2
Putnam	N.A.	N.A.	47.3
Thompson	N.A.	N.A.	54.9
Windham County	15.4	38.7	43.2
Connecticut	13.1	52.5	34.8

f. Housing. This region has experienced an increase in the number of dwelling units built, see Table 4. Thompson, which experienced a growth rate of 27.7 percent in terms of dwelling units - (all rates are from 1960 to 1970) and Dudley, with a 22.7 percent increase, showed the most rapid rates of increase. Both Oxford, with a growth rate of 9.7 percent and Webster with a rate of 11.7 percent, experienced growth lower than that occurring in Worcester County (17.4 percent). Putnam had the smallest percent increase (6.9%), falling much lower than the 21.9% growth rate in Windham County. The median value of housing specified owner occupied and with all plumbing facilities was similar throughout all the towns being considered. A comparison with the figure for the communities respective states yields a different picture. For Massachusetts the median figure was \$20,700 while for Connecticut the figure was \$25,600. In this light the \$18,200 figure for Thompson and that of \$16,500 for Putnam appear lower relative to their State level than Oxford \$16,400, Webster \$18,900 and Dudley \$19,100.

TABLE 4

HOUSING UNITS

	1960	1970	% Over 1960
Dudley	2,141	2,626	22.7
Oxford	2,648	2,905	9.7
Webster	4,871	5,439	11.7
Putnam	2,814	3,007	6.9
Thompson	2,115	2,700	27.7
Massachusetts	1,538,486	1,839,028	19.5
Connecticut	818,544	981,603	19.9

Source: U.S. Census, 1970

E. Improvements Desired

11. State and Federal.

The Massachusetts Division of Water Pollution control has found that on the basis of their water quality studies on the French River, low flow augmentation may be necessary to achieve the PL 92-500 goal of fishable swimmable waters by 1983. On 2 October 1970 the Director of the Massachusetts Water Resources Commission requested the New England Division to examine the possibility and feasibility of utilizing storage in the Buffumville and/or Hodges Village reservoirs to provide minimum low flow on the French River. A copy of the letter is inclosed in APPENDIX B.

The U.S. Environmental Protection Agency (Region 1) also evaluated preliminary water quality tests on the French River and determined that treatment levels exceeding best available and economically achievable waste

treatment technology, would be required in order to secure the national goal of 1983. They recommended that the Corps of Engineers undertake feasibility studies on providing streamflow regulation for water quality control from the Hodges Village Reservoir. A copy of their letter dated 30 December 1975 is inclosed in APPENDIX B, as well as a letter dated 15 April 1976, stating that with low flow augmentation the estimated potential reduction in the required treatment levels would result in an annual savings in treatment cost of \$172,000.

Congressman Christopher J. Dodd 2nd District, Connecticut, requested that the Corps undertake a study to provide low flow augmentation for the French River to relieve its waste treatment problems. A copy of his letter dated 9 July 1976, is also inclosed in APPENDIX B.

12. Local.

Local interests in the immediate area have not expressed any desire to change the operation of the project since its construction. However, they have been consulted on the Master Plan for Recreation Resources Development at the Hodges Village Dam, and are in general agreement with the recommendations of developing additional general recreational and picnicking facilities.

Other interests, as far downstream as Putnam, Connecticut, are concerned with foul odors from the river during minimum flow conditions, particularly during the summer months. They have expressed their desires for low flow augmentation to their local, state, and Congressional representatives.

F. Objectives

13. General.

The objective of this study is to investigate the feasibility of modifying the operation and/or structural elements of the completed project for immediate and long range land and water related resource needs. Equal consideration will be given to each of the following specific objectives:

a. National Economic Development. The present and projected needs will be assessed for additional flood control, water power, water supply, water quality, pollution abatement, and other elements of water resource development. The annual costs of these measures will be compared against the annual benefits in the interest of selecting projects based on national economic objectives.

b. Regional Development. The regions income gains and the additional economic impact will be evaluated on the basis of possible expansion of business, industry, recreation and on population and social development that could result from a multiple plan of improvement.

c. Environmental Quality. The preservation and enhancement of the Nation's environmental resources is essential to insure their availability for future use. This investigation will consider the preservation of natural and cultural areas, creation or restoration of scenic areas, preservation and enhancement of recreational areas, and the rehabilitation and protection of esthetic values. In accordance with the National Environmental Policy Act of 1969, all available means will be utilized to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations.

d. Social Well Being. The social well being of the greatest number of people shall be the overriding determinant in considering the best use of water and related land resources. Consideration shall be given to project effects on real income, security of life, health and safety, education, cultural and recreational opportunities, emergency preparedness, and other factors. Hardship and basic needs of particular groups within the general public will be of concern, but care will be taken to avoid resource use and development for the benefit of a few to the disadvantage of many.

14. Future Projections.

Modifications of the Hodges Village Dam for the purpose of pollution abatement will provide an immediate short term economic stimulus to the Oxford area during the construction period. Long range impacts may include a slight reduction in employment due to the closure of some of the recreational facilities in the reservoir area. However, better water quality downstream could increase recreational facilities and employment. Substantial savings in pollution abatement costs would be realized and elimination of obnoxious odors could encourage some intensification of development in the downstream areas. Upgrading the general water quality along the river would make it more acceptable for industrial process use and therefore would encourage industrial growth.

Without modifications of the existing project there would be minimal impacts in the Oxford area. However, downstream areas would have to seek other alternatives to their obnoxious odor problems.

15. Effects Assessment.

The assessment will cover all environmental, social, and economic effects, following the guidelines established by ER 1105-2-105, to insure that all significant adverse and beneficial project effects are systematically identified and assessed, and the feasibility and cost of eliminating or minimizing adverse effects is taken fully into account. Possibilities of project benefit and adverse project effects on the environment, recreation, and esthetics of the area will be given special attention.

The resulting decisions and project recommendations will be made in the best overall interests of the public with a balance maintained between elements of dollar benefits and costs, the degree of satisfaction of public needs, and the extent of other types of effects. Significant effects will be identified and evaluated and any desirable project modification revealed by the assessment will be fully evaluated.

G. Prior Investigations and Reports

16. Federal.

A number of Federal reports on the Hodges Village Dam and the French River have been completed. The information and material in the reports will be evaluated and used as aids in the preparation of the survey report, they are as follows:

a. Planning Report, Hodges Village Dam, Thames River Basin, Corps of Engineers, Seattle District, March 1956.

b. General Design Memorandums, Hodges Village Project, French River, Massachusetts. Numbers 1 through 7, Seattle District and New England Division, Corps of Engineers, June 1956 thru April 1957.

c. Master Manual for Reservoir Regulation, Thames River Basin, Corps of Engineers, New England Division, June 1976.

d. Operations and Maintenance Manual, Hodges Village Dam, Oxford, Massachusetts, Corps of Engineers, New England Division, June 1972.

e. Reconnaissance Report-Flow Augmentation Storage, Hodges Village Reservoir, Corps of Engineers, New England Division, Unpublished, December 1975.

f. Master Plan for Recreational Resources Development, Hodges Village Dam, Oxford, Massachusetts, Corps of Engineers, New England Division, March 1976.

g. Advanced Waste Treatment and Low Flow Augmentation, French River, Massachusetts-Connecticut, Water Quality Control, Environmental Protection Agency, Region I, Unpublished, April 1976.

h. Periodic Inspection Report No. 1, Hodges Village Dam, Oxford, Massachusetts, Corps of Engineers, New England Division, May 1976.

i. Environmental Assessment of the Operation and Maintenance of the Hodges Village Dam, Oxford, Massachusetts, Corps of Engineers, New England Division, September 1976.

17. Non-Federal.

The non-Federal reports are as follows:

- a. Quinebaug River Basin Study, French and Quinebaug Rivers, Parts A & B, Massachusetts Water Resources Commission, Division of Water Pollution Control, January 1972.
- b. French and Quinebaug Rivers, Water Quality Data, Part A, Massachusetts Water Resources Commission, Division of Water Pollution Control, October 1972.
- c. French and Quinebaug Rivers, Wastewater Discharge, Part B, Massachusetts Water Pollution Control, Division of Water Pollution Control, November 1973.
- d. French and Quinebaug Rivers, Water Quality Survey Data, Part A, Massachusetts Water Resources Commission, Division of Water Pollution Control, November 1974.
- e. French and Quinebaug Rivers, Water Quality Analysis, Part C, Massachusetts Water Resources Commission, Division of Water Pollution Control, March 1975.
- f. Baseline Water Quality Studies of Selected Lakes and Ponds, French and Quinebaug River Basins 1976, Massachusetts Department of Environmental Quality Engineering, Department of Water Pollution Control, November 1976.

H. Scope of Study

18. Water Resource.

The study will determine where specific problems exist and if alleviation of such problems can be economically instituted for the benefit of the general public. The approach to determining these problems will be accomplished through phase studies of each of the resource needs. This Plan of Study is the Stage I portion of the overall study and identifies potential water resource problems. Stage 2 studies will more fully detail and evaluate significant problems and alternatives through reiterative investigations. Stage 3 will completely detail the recommended plans which satisfy the multi-objective planning framework of the Principles and Standards process. These studies will determine if the Federal Government can contribute assistance toward solving the problems by modification of the existing project.

The scope of work will also include investigations of pertinent engineering items and regulations of the completed project, as part of or incidental to low flow storage and other related studies. They are as follows:

a. Hydrology. Hydrologic items and regulations to be investigated are:

(1) Augmentation Reliability. Review and update the 1970-1971 inhouse studies, which indicated that approximately 3,400 acre-feet would provide a flow of 36 cubic feet per second with a 90 to 95 percent reliability.

(2) Low Flow Rule Curve. Develop a reservoir low flow rule curve for the proposed method of operation during the summer months, showing the maximum and minimum pool elevations for each month. This will allow for the systematic drawdown of the pool so that the entire flood control storage is available by mid-October.

(3) Spillway Design Flood Analysis. Analysis of the spillway will be made to determine the adequacy of its length and height using current Spillway Design Flood (SDF) criteria.

(4) Frequency of Reservoir Filling. An approximate frequency of reservoir filling curve for in-house use has been developed, based on the 17 years of data observed at Hodges Village Dam. The effects that the proposed low flow seasonal pool would have on the curve will be determined.

(5) Downstream Nondamaging Channel Capacity. The maximum non-damaging channel capacity immediately downstream of Hodges Village Dam is about 525 cfs or 17 cfs per square miles (csm) for both growing and non-growing seasons. This is consistent with the discharge capacity of the other Thames River Basin reservoirs. Any modification to this discharge capacity based on changing conditions of development along the downstream channel and flood plain will be investigated.

(6) Upstream Dam Failures. A hydrologic analysis of significant upstream dams will be made to determine the effect on Hodges Village Dam, should any of these dams fail. Included will be an analysis of channel restrictions which might affect discharge and the total volume of water stored from the breached dams.

(7) Regulation (Flood Control). An analysis will be made to determine the effect that reduced flood control storage during impoundment for low flow augmentation will have on flood control capability in a repeat of the August 1955 flood of record and during a Standard Project Flood.

b. Water Quality. Several studies pertaining to water quality aspects of possible augmentation storage pools will be performed. The need for these studies arises from the following facts: (1) creation of a new pool is proposed on a river that is currently classified by the Commonwealth of Massachusetts as degraded below its approved level of water quality, (2) physico-chemical reactions may occur within the impoundment that could significantly alter the quality of the water, and (3) use of the pool for low flow augmentation purposes will require that water of the best possible quality, particularly with regard to temperature and dissolved oxygen, be released downstream.

Interpretation of existing water quality data for the French River in the vicinity of Hodges Village Dam will be required to evaluate present conditions. Data from the Massachusetts Division of Water Pollution Control (MDWPC) and the Corps water quality laboratory will be used in this evaluation.

The method of reservoir site preparation having the least impact on the quality of the impounded water will be determined. This will be accomplished through assessment of the influences of vegetation and soil types.

An understanding of potential reservoir water quality conditions can be gained through analysis of data collected by the MDWPC and the U.S. Environmental Protection Agency for shallow lakes in the Thames River basin. This data should be augmented with the additional surveys at Corps projects in the basin.

A thorough understanding of the thermal regimen of the lake is absolutely necessary since temperature is perhaps the most significant factor affecting impoundment and discharge quality conditions. The thermal characteristics will be evaluated through computer modelling techniques and comparative analysis of water quality data for other lakes and ponds in the vicinity. This evaluation will provide an understanding of the temperature of the water released for augmentation purposes and will serve as the basis for determining the need for a selective withdrawal system capable of controlling discharge temperatures at the project.

c. Hydraulic Analysis. The adequacy of the existing hydraulic control facilities at Hodges Village Dam to maintain the pool level and provide required downstream releases will be evaluated. Also, in conjunction with the thermal simulation studies outlined in previous paragraphs, the ability of the facilities to regulate for desired out-flow quality criteria will be determined. Should the existing facilities be inadequate with regard to either consideration, modifications will be recommended.

d. Foundations and Materials. The Hodges Village Dam was constructed as a single purpose flood control project. The dam does not have an impervious core or foundation seepage cutoffs. There is no permanent pool behind the dam and the reservoir is kept empty during non-flood conditions.

During a March 1968 storm, the flood waters behind the dam reached a record pool elevation of 489.0 feet msl, a water depth of 23.4 feet, and utilized 43 percent of the reservoir storage capacity. During this impoundment, seepage developed along the east abutment downstream of the toe of the dam. Damage to the pavement of Harwarth Road resulted. An interceptor drain was constructed at a cost of about \$53,000 to control

any future seepage on this abutment and to protect Hawarth Road, as well as collect and divert the leakage downstream. During the March 1977 impoundment, the flood waters reached a depth of 14.1 feet and utilized 13 percent of the storage capacity. During this impoundment seepage was observed emerging from the downstream toe of the dam at the old riverbed location. No visual damage occurred, however, the problem is under investigation.

Preliminary investigations indicate that a low flow augmentation pool would be 19.0 feet deep and utilize 25 percent of the storage capacity. The seepage rate from the proposed low flow pool will be estimated by the flownet method and compared with required inflow and discharge rates for critical periods, to determine the need for any modifications of the dam. Seepage gradients and filter requirements will also be investigated. Adequacy of upstream slope protection and the effect of the proposed low flow pool on the dam stability will be checked. If modifications are required, the type of modification; development of design; seepage control; and construction materials will be recommended.

e. Real Estate. At some areas of Hodges Village Dam, fee ownership exists at elevations greater than spillway crest (501.0 msl) or at any elevations greater than the minimum easement guide taking line (504.0 msl). Studies will be made to determine if the new low flow storage pool elevation will fall within the reservoir ownership or if it will encroach on existing easements.

At present, there are five outgrants in effect at Hodges Village Dam. A summary of three outgrants which would be affected by the low flow augmentation is as follows:

(a) The Commonwealth of Massachusetts, Division of Fisheries and Game, has a 25-year license for fish and wildlife management purposes. The license covers approximately 676 acres of fee owned land. (Expires 31 October 1987).

(b) The town of Oxford has a 25-year lease on two separate sites for park and recreational purposes. Approximately 109 acres of fee owned land are affected by the lease in the Rocky Hill and Greenbriar areas. (Expires 30 November 1988).

(c) The Massachusetts Electric Company has an easement for the installation and maintenance of electric power and communication facilities. The term of the easement is for an indefinite period.

The effects of the low flow pool on the Rocky Hill and Greenbriar Recreation areas would require additional studies. All three outgrants would require additional studies to determine if any modifications or cancellations are necessary to implement the low flow storage pool.

f. Economics. Alternative plans considered possible will require additional studies to determine affluence factor, future growth and expansion, and intensification of existing land use for benefit cost comparisons and analysis.

19. Procedures for Selection of Improvements.

Studies will be directed to formulate and analyze alternatives for consideration and comparison during the planning process. Effectiveness of methods designed to meet selected needs, problems and multiple objectives, including national economic development, regional development, environmental quality, and social well being, will be evaluated on the benefit-cost principle.

Project effects that cannot be incorporated in the benefit cost evaluation will be assessed separately in accordance with the guidelines of ER 1105-2-105, subject: "Guidelines for Assessment of Economic, Social and Environmental Effects of Civil Works Projects," published 28 September 1972. These guidelines were designed to insure that all significant adverse and beneficial effects of Corps of Engineers projects are fully considered in pre and post-authorization planning. They have been approved by the Secretary of the Army and comply with the directive of Congress contained in Section 122 of the River and Harbor and Flood Control Act of 1970, Public Law 91-611. These guidelines supplement and extend the requirements of the National Environmental Policy Act of 1969, (Public Law 91-190).

20. Study Guidelines.

Studies will include report details as required by EM 1120-2-101, subject, "Survey Investigations and Reports, General Procedures." This manual incorporates the basic instructions for the planning and processing of feasibility reports through authorization of projects by Congress. The EM 1120-2-100 series of manuals will also provide: basic information and guidance on principles and procedures of engineering and economic investigations for civil works projects.

Studies will also be conducted in accordance with the ER 1105-2-200 series, "Planning Process." These regulations establish guidance for implementing and planning requirements of the Water Resources Council's Principles and Standards (P&S) and related policies. They do so by describing the planning process under which alternative plans are prepared and evaluated and by identifying the changes from existing guidance that are necessary as a result of the P&S and related policies. The objective of these regulations is to guide planning for the conservation, development, and management of water and related land resources. This is accomplished by systematically preparing and evaluating alternative plans that address publically identified problems, needs, concerns and opportunities. Alternative plans will consider nonstructural and structural measures as coequal approaches to managing resources. The comparative impacts of these alternative plans will be displayed in a system of accounts as provided by ER 1105-2-921. Through this process, decision makers at all levels will be provided information necessary to make effective choices regarding resource management under existing and projective conditions.

I. Constraints and Controls

21. General.

This study has been funded to complete the Stage I and a portion of the Stage II, Planning Functions. It is anticipated that there will be no funding constraints of the remaining Stage II and Stage III Functions.

There are no known legal, social, technical, or political constraints at this time.

Studies will be conducted and continued only if a possibility remains that a practical, economically feasible, and environmentally and socially acceptable project modification or plan of improvement can be recommended.

22. Potential Problem Identification.

Because of previous leakage problems at the existing dam during periods of high water storage, it is anticipated that there will also be leakage problems under seasonal pool conditions for low flow augmentation purposes.

The creation of a seasonal pool will inundate a large portion of the leased recreational land and may require substantial modification or cancellation of the recreational leases, as well as other outgrants. In addition, it will most likely necessitate clearing and grubbing of over 400 acres of woods, fields and wetlands, most of which the Commonwealth of Massachusetts is licensed to manage for fish and wildlife enhancement. This clearing would seriously impact the suitability of the reservoir area for wildlife habitat and degrade the aesthetics of the reservoir during periods of low water level.

The warm water ecosystem and the swamp and wetland environment of the existing reservoir would be changed by a seasonal pool and may preclude equitable tradeoffs for low flow augmentation and/or other purposes. Other potential problems will be investigated and evaluated during the course of the study.

J. Coordination

23. General.

Past coordination with Federal, State and local interests aided in development of the Reconnaissance Report on Low Flow Augmentation in December 1975. Future coordination measures of the overall study will continue through conferences and correspondence. Each stage of the study will be presented for comment or concurrence to Federal, State, regional, local and civic agencies having an interest in planning or development of water resources in the study area. Public meetings will be held as

required in accordance with progress and schedules. In order to insure Federal, State and local participation in the study, the following organizations will be requested to coordinate in the water resource planning:

a. Federal Agencies.

U.S. Department of Interior, Fish & Wildlife Service
U.S. Department of Agriculture, Soil Conservation Service
U.S. Environmental Protection Agency
U.S. Department of Interior, Bureau of Outdoor Recreation
U.S. Department of Transportation, Federal Highway Administration
U.S. Department of Housing and Urban Development
U.S. Federal Insurance Administration
U.S. Department of Health, Education & Welfare
U.S. Advisory Council on Historic Preservation

b. State and Regional Agencies.

Massachusetts Department of Environmental Quality Engineering
Massachusetts Office of State Planning, State Clearinghouse
Connecticut Clearinghouse Director
New England River Basins Commission
Tri-State Regional Planning Commission

c. Local Interests.

Town of Oxford, Massachusetts
Oxford Water Company

In addition, various civic groups and neighborhood associations will be contacted as well as elected officials or their representatives of the affected communities.

K. Public Participation

24. General.

Several informal meetings have been held with Federal, State, local and individual interests, concerning pollution conditions on the French River. Their comments and desired solutions have been incorporated in the December 1975 Reconnaissance Report and this plan of study. A Stage I public meeting was not held, as it was felt that the informal meetings and correspondence with concerned interests reflected local concerns and desires. However, a Stage II public meeting will be held to solicit additional desires and identify other potential problems and present alternative plans of improvement for public consideration.

A public participation program, flexible and responsive to the needs of all concerned local officials, private agencies and individual interests will be initiated.

A final Stage III public meeting will be held at the conclusion of the study, depending on economic justification of a selected plan of improvement.

L. Submission of Reports

25. Plan of Study.

This report constitutes the Plan of Study and completes the Stage I Planning Function.

26. Feasibility Report.

The submission of the feasibility report will be determined by the allocation of funds and/or other constraints and controls discussed in Section I. The final report is currently scheduled to be submitted to the office of the Chief of Engineers in September 1978.

27. Other Reports.

Interim reports and Environmental Impact Statements will be submitted during the course of the investigations, as required.

M. Estimates of Costs

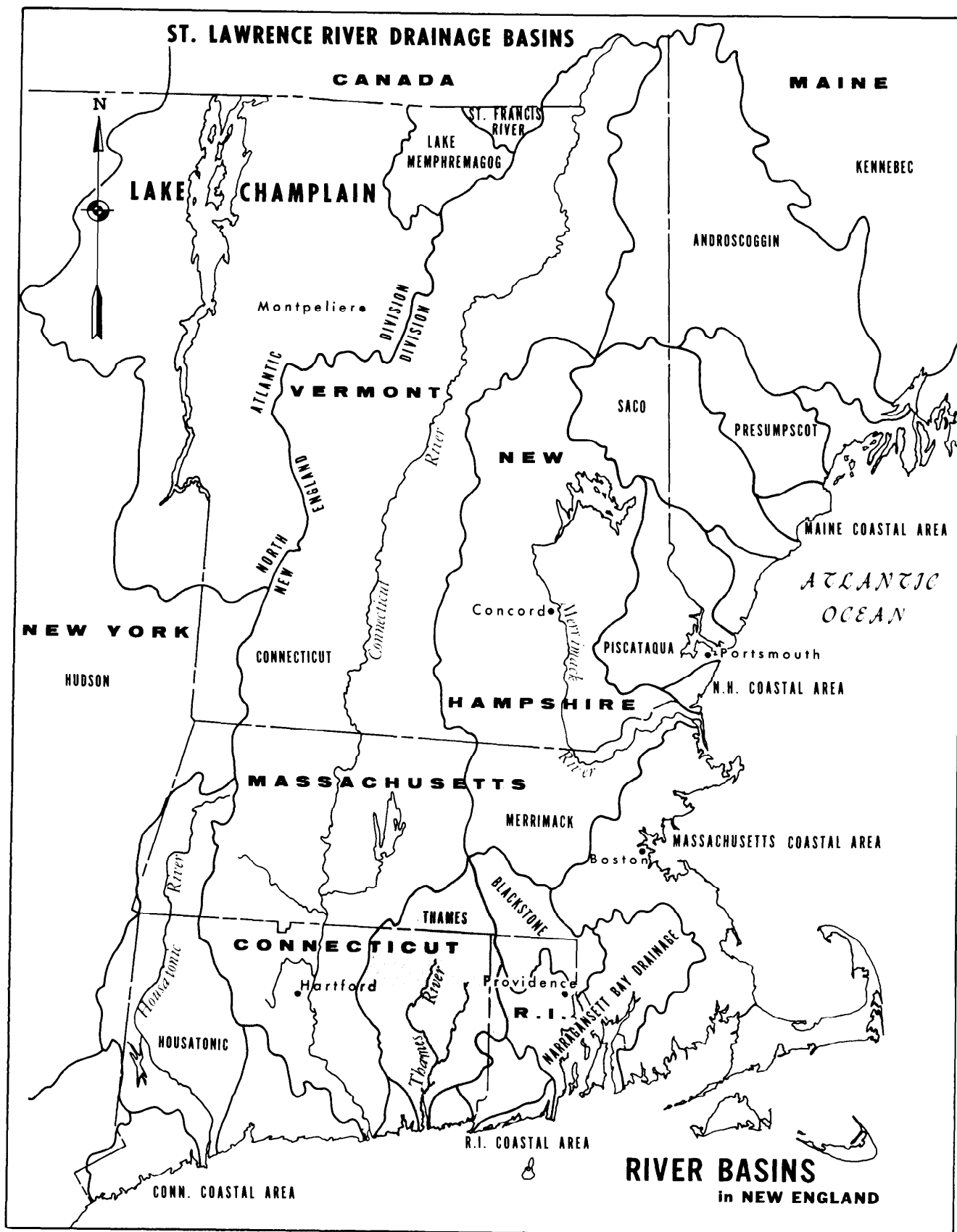
28. General.

The preparation of budgetary data for the Hodges Village Dam is predicated upon the estimated amount of money needed to complete the work items considered necessary for a Level C study. The distribution of funds will provide for the identification of the needs of each area under investigation by early FY 1978 and the selection of the final alternatives by mid FY 1978.

N. Recommendation

29. Recommendation.

Approval of this Plan of Study for the purpose of modifying the existing project for low flow storage and determining the need and solutions of other land and water related resource desires in the area is recommended.



[illegible]

APPENDIX A
SUMMARIZED DATA
OF
EXISTING PROJECT



THAMES RIVER FLOOD CONTROL PROJECT

HODGES VILLAGE DAM, MASSACHUSETTS

Condition of Improvement, 30 September 1976

Summarized Data

Location: The dam is on the French River 15 miles above its confluence with the Quinebaug River in the Town of Oxford, Massachusetts.

Authorization: The project was authorized by the Flood Control Act of 1941.

Purpose: The project provides for the construction of a rock and earth fill dam providing reservoir storage for flood control.

Reservoir:

Counties affected: Worcester

Operating levels:

<u>Pool</u>	<u>Elevation of Pool</u>	<u>Capacity (Acre-Ft.)</u>	<u>Area (Acres)</u>
Invert	465.5		
Minimum	465.5		
Seasonal	-		
Flood Control	465.5-501	13,250	740
Total Storage	501	13,250	740

Drainage Area:

Drainage area above dam - 31.1 square miles

Dam:

Type	Rock and earth fill
Maximum Height	55 feet
Length	2,050 feet
Quantity of fill	282,400 c.y.

Included in project are 4 earth dikes necessary for closing saddles in reservoir perimeter. The 4 dikes have a total length of 2,600 feet and maximum height of 35 feet.

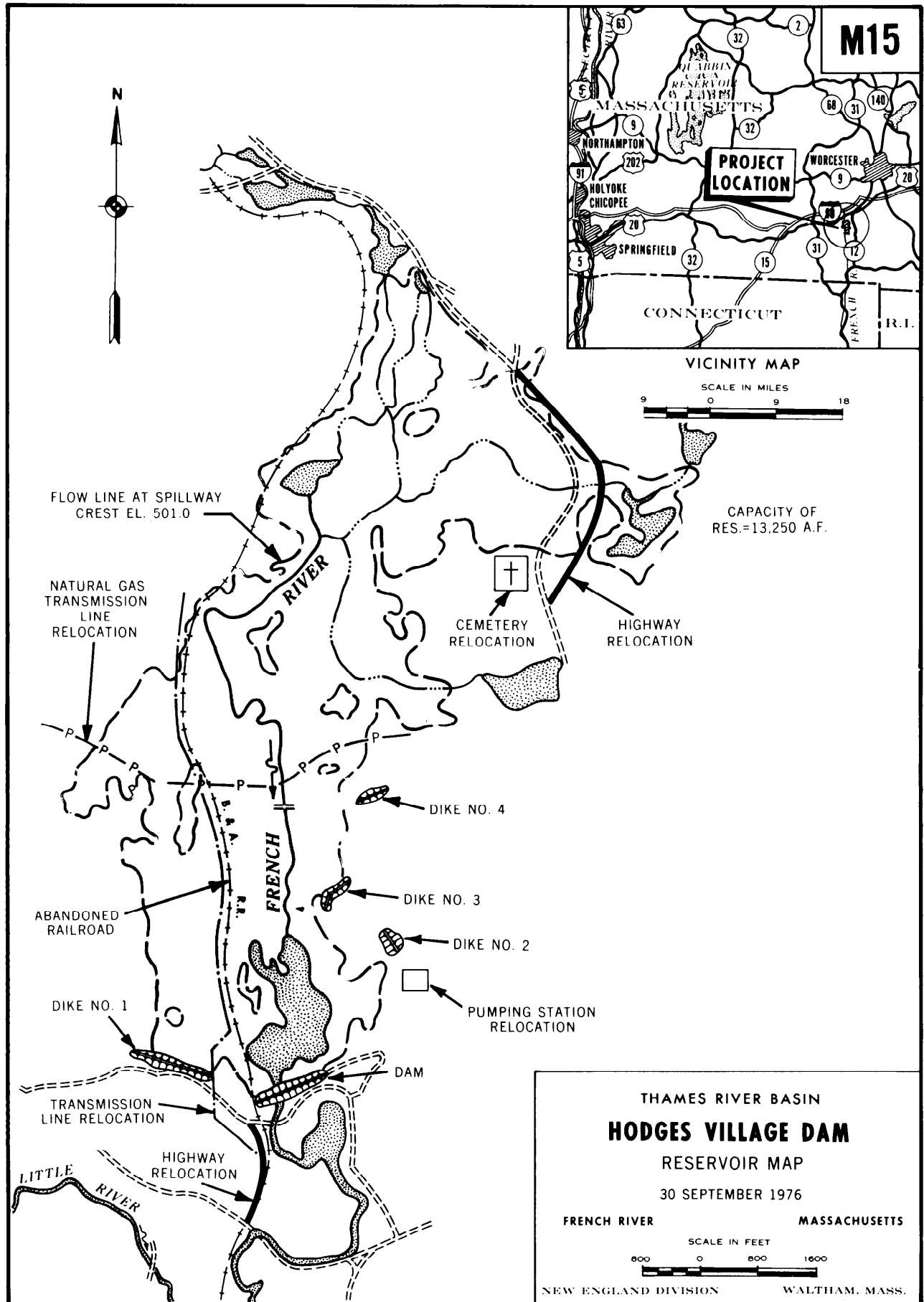
Spillway: Chute-type, with ogee weir, 145 feet in length with crest elevation 501. Discharge capacity is 25,800 c.f.s.

Outlet Works: Two rectangular conduits, 5 feet by 6 feet and 206 feet in length with two 5'x6' electrically-controlled slide gates.

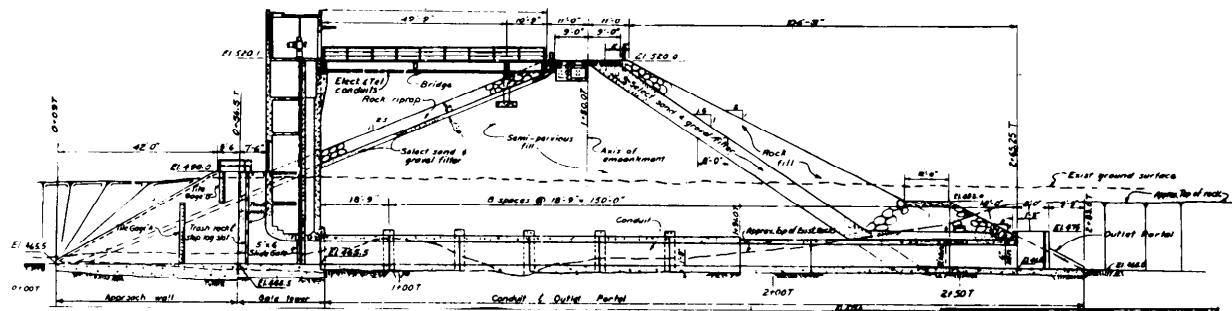
Relocations: Highway, railroad and transmission line relocated.

Progress: Project is complete. Construction of dam and appurtenances was initiated in March 1958, completed in December 1959.

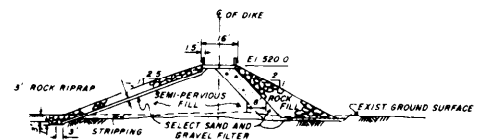
Cost Data: Cost of completed work was \$1,277,000 for construction and \$3,144,000 for lands and damages including highway, railroad and utility relocation, a total of \$4,421,000.



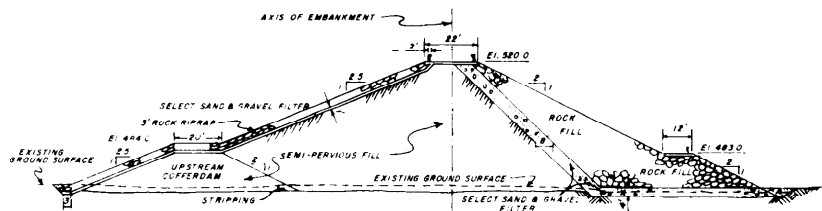
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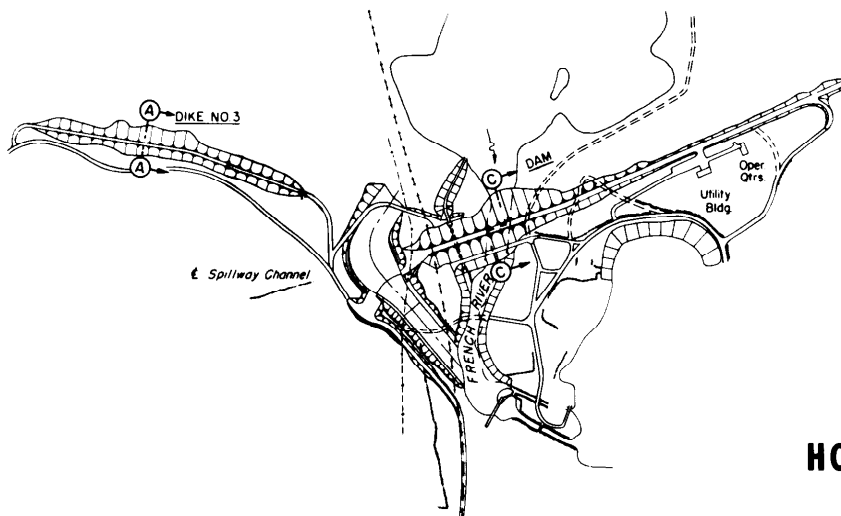
SECTION THRU C OF OUTLET WORKS



SECTION A-A



SECTION C.C



THAMES RIVER BASIN
HODGES VILLAGE DAM

GENERAL PLAN

30 SEPTEMBER 1976

FRENCH RIVER

MASSACHUSETTS

NOT TO SCALE

NEW ENGLAND DIVISION

WALTHAM, MASS.

APPENDIX B

PERTINENT CORRESPONDENCE

PLAN OF STUDY

HODGES VILLAGE DAM

APPENDIX B

PERTINENT CORRESPONDENCE

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OFFICE OF THE DIRECTOR

DIVISION OF WATER
POLLUTION CONTROL

The Commonwealth of Massachusetts

Water Resources Commission

State Office Building, Government Center

100 Cambridge Street, Boston 02202

October 2, 1970

Mr. John Wm. Leslie, Chief
Engineering Division
Corp of Engineers
424 Trapelo Road
Waltham, Massachusetts

Re: Request for low flow study,
French River, Thames River Basin

Dear Mr. Leslie:

This Division has made preliminary estimates of the need for flow augmentation in the French River below Webster, Massachusetts. It has been determined that a minimum flow of 36 Cfs at the Webster gauge would be required to attain Water Quality Standards assigned this reach of the River. This figure based on secondary treatment of all municipal wastes and equivalent treatment of industrial wastes prior to discharge.

It is requested that you examine the possibility and feasibility of utilizing storage in the Buffumville and/or Hodges Village Reservoirs to provide this minimum flow. By copy of this letter, we are apprising the Federal Water Quality Administration of this request.

If members of your staff assigned this project have any questions, I would suggest they call Mr. Slagle of this Division.

Very truly yours,

Thomas C. McMahon
Director

TCM/WAS/Akp

cc: Mr. Bartlett Hague
New England Basins Office
Federal Water Quality Administration
240 Highland Avenue
Needham Heights, Massachusetts 02194



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

December 30, 1975

Mr. Carmine Ciriello, Project Chief
Plan Formulation Branch
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Mr. Ciriello:

This letter will confirm discussions between staff members of the Corps, Massachusetts Division of Water Pollution Control and EPA, held on December 8, 1975, for the purpose of outlining future steps for dealing with the water quality problems of the French River.

Based upon these discussions, the following was established:

1. Preliminary water quality evaluations by the Massachusetts Division of Water pollution Control and EPA indicate that treatment levels exceeding best available waste treatment technology economically achievable may be required in order to secure the national goal of fishable-swimmable waters in the French River.

2. Stream low flow augmentation is a viable alternative complimenting best available waste treatment technology economically achievable for achieving water quality objectives.

3. The Corps of Engineers may be able to provide augmented streamflow from the existing flood control reservoir at Hodges Village. However, it would be several years before this could be accomplished.

4. EPA and the Division of Water Pollution Control will prepare a status report on alternatives for achieving water quality objectives in the French River. The report should be available within a few weeks.

In summary, then we recommend the Corps undertake feasibility studies on providing streamflow regulation for water quality control from the Hodges Village Reservoir. We look forward to cooperating with the Corps in these studies.

Sincerely yours,


Walter M. Newman, Chief
Water Quality Branch

CC: Mass DWPC
Central Mass 208
Conn. DEP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

April 15, 1976

Mr. Carmine Ciriello, Project Chief
Plan Formulation Branch
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Mr. Ciriello:

Enclosed is a report on the preliminary evaluation of low flow augmentation and advanced wastewater treatment as alternatives for achieving water quality objectives of the French River.

The report concludes that low flow augmentation, in combination with advanced waste treatment, presents an economical alternative to advanced waste treatment alone. It is estimated that the potential reduction in the required treatment levels would result in an annual saving in treatment cost of \$172,000.

You should be cognizant that the analysis is based on the best available data collected prior to the operation of the Webster secondary treatment facility. Further refinement may be necessary when more current data becomes available.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Walter Newman", with a long horizontal flourish extending to the right.

Walter M. Newman, Chief
Water Quality Branch

Enclosure

WASHINGTON OFFICE:
129 CANNON HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515
(202) 225-2076

DISTRICT OFFICE:
STANLEY ISRAELITE
SPECIAL ASSISTANT

POST OFFICE BUILDING
340 MAIN STREET
NORWICH, CONNECTICUT 06360
(03) 886-0139

Congress of the United States
House of Representatives
Washington, D.C. 20515

July 9, 1976

SUBCOMMITTEES:
IMMIGRATION, CITIZENSHIP AND
INTERNATIONAL LAW
CIVIL AND CONSTITUTIONAL RIGHTS

SCIENCE AND TECHNOLOGY

SUBCOMMITTEES:
SCIENCE, RESEARCH AND TECHNOLOGY
ENERGY RESEARCH, DEVELOPMENT AND
DEMONSTRATION

BOARD OF VISITORS TO THE UNITED
STATES COAST GUARD ACADEMY

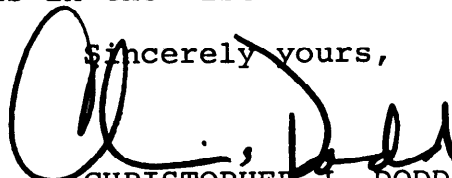
Colonel John H. Mason, Division Engineer
Corps of Engineers
Department of the Army
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Colonel Mason:

Since it has been determined that low flow augmentation would be necessary for the French River and its waste treatment problems, I would be most appreciative if the Corps were to undertake a study to provide this low flow augmentation for the French River.

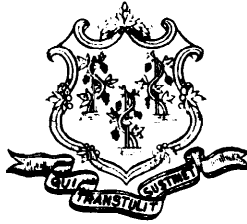
Please accept my sincere thank you for your consistently kind and immediate cooperation with my District office in Norwich. Stanley Israelite has told me many times of the efficient way in which you and your staff handle the many matters that come before us in the District.

Sincerely yours,



CHRISTOPHER J. DODD
Member of Congress

ELLA GRASSO
GOVERNOR



STATE OF CONNECTICUT
EXECUTIVE CHAMBERS
HARTFORD

December 21, 1976

Colonel John P. Chandler
Corps of Engineers
Department of the Army
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02154

Dear Colonel Chandler:

Thank you for informing me of the status of the funds to initiate a study of the existing Hodges Village Flood Control Dam in Oxford, Massachusetts, relative to improving water quality downstream from the dam.

It is the position of the State of Connecticut and the Department of Environmental Protection that pollution of the French River can be considerably ameliorated through the construction of advanced wastewater treatment systems to serve the towns of Webster and Dudley, Massachusetts. It is also the state's position that low flow augmentation may supplement these advanced wastewater treatment systems in further improving the condition of the water quality during the summer, but low flow augmentation cannot, in itself, be considered a substitute for the required facilities. We are pleased, therefore, that a study of the supplemental low flow augmentation is being conducted by the Corps of Engineers, and we shall cooperate in supplying any information you may require.

I wish to call your attention to Section 25-101 and Section 25-102 of the Connecticut General Statutes, a copy of which is enclosed. These sections of Connecticut law established the Thames River Valley Flood Control Commission which is responsible for managing all activities concerning the

Colonel John P. Chandler
Page 2
December 21, 1976

Hodges Village Dam. The State of Connecticut and the Commonwealth of Massachusetts have agreed to certain conditions as set forth in the statutes.

If there are any changes contemplated in the function of the Hodges Village Dam, any present agreements between the State of Connecticut and the Commonwealth of Massachusetts would have to be reviewed. Mr. William Wise, 37 Bishop Road, West Hartford, Connecticut, is a member of the Thames River Valley Flood Control Commission to whom correspondence may be addressed. The Department of Environmental Protection's Water Resources Unit and Water Compliance Unit have regulatory authority in these matters and also should be informed of all developments.

We appreciate the Corps' efforts in conducting this study.

With best wishes,

Cordially,

A handwritten signature in dark ink, appearing to read "Ella Grasso". The signature is fluid and cursive, with the first name "Ella" and last name "Grasso" clearly distinguishable.

ELLA GRASSO
Governor